

the hammering piston is falling *during the pressure air operating mode*. (emphasis added)” The Examiner indicated that this reasoning was not persuasive based on the contents of column 7, lines 17-20, of the Scheid reference.

However, the Applicant’s reasoning related to the pressure air operating mode, while the text at column 7, lines 17-20, of the Scheid reference does not relate to the operation of the device disclosed therein during the pressure air operating mode. To the contrary, the paragraph of the Scheid reference quoted by the Examiner describes the “soft Diesel piling” mode of that device. The Applicant has acknowledged extensively that it has recognized that all Diesel hammers require a sealed chamber below the hammering piston that inherently establishes a preload force prior to ignition of the fuel in that chamber.

In contrast to a Diesel type device, however, the Applicant has developed a true drop hammer device that, due to the arrangement of the vent port recited in the claims, creates a preload force immediately prior to impact. The claimed device is not a Diesel hammer and does not operate in any mode as a diesel hammer. The Applicant respectfully submits that the disclosure of how the Scheid device operates in soft and/or hard Diesel piling modes in no way discloses, teaches, or suggests the present invention, which does not operate under any condition in a Diesel mode.

The Scheid reference does disclose the use of pressurized air within an air accumulator to raise the hammering piston. Column 5, line 34, through column 6, line 65, of the Scheid reference describes in detail the operation of a pneumatic circuit that causes the hammering piston to be raised. What happens when the hammering piston after it has been dropped is described at column 6, line 66, through column 7, line 3, as follows:

After the hammering piston 26 has fallen onto the hammering member 12 and has moved the latter and an object to be piled and contacting the hammering member 12 in the downward direction, the operating cycle described above will start again.

This description of the falling of the hammering piston of the Scheid reference in no way discloses, teaches, or suggests the location of a vent port such that a preload

force is established. The Applicant respectfully submits that, to read the Scheid reference as disclosing, teaching, or even suggesting the claimed structure, one would need to use impermissible hindsight gained by reading the Applicant's disclosure.

Turning now more specifically to the rejection under 35 USC § 103(a) based on the combination of the Scheid and Martin references, the Martin reference discloses a conventional drop hammer that is completely exposed to the ambient air during the entire operating cycle. As is conventional, at no point during the operating cycle performed by the Martin device is a closed chamber formed below the drop hammer that creates a preload force as recited in the claims.

The Applicant respectfully submits that the Examiner has failed to disclose any teaching that would motivate one of ordinary skill in the art to combine the teachings of the Scheid and Martin references. The Scheid reference employs a closed chamber, while the Martin reference discloses an open structure that could not be used as a diesel hammer system.

In the pressure air operating mode, the Scheid reference discloses the use of a pneumatic system to raise the hammering piston. If the Examiner is suggesting that the use of a cable and electromagnet to raise the hammering piston as described in the Martin reference be substituted for the pneumatic system, the Applicant respectfully submits that the Scheid reference teaches away from this combination. As stated at column 1, lines 27-32, of the Scheid reference teaches that a combination of Diesel and drop hammer technologies would not be considered practical to one of ordinary skill in the art because of the differences between their basic structures:

There are other prior art pile hammers, wherein ... the hammering piston [is] allowed to fall freely onto the hammering member. Such softly operating pile hammers are used particularly, where piles and the like must be hammered in soft soil or where production of heavy noise as produced by Diesel type pile hammers cannot be tolerated.

Diesel type pile hammers and hydraulic pile hammers differ considerably already as to their basic structure. If it is desired to obtain at one and the same operating site the advantages of hard or harsh hammering as well as the advantages of soft hammering, both types of pile hammers must be provided. This means considerable expenditures.

The Scheid reference itself thus suggests that the structure of the type of pile driver described in the Martin reference is fundamentally incompatible with the structure of a Deisel type pile hammer as disclosed in the Scheid reference.

The Scheid reference further states at column 2, lines 1-5, the advantages of using a working gas to raise the hammering piston is a soft hammering mode:

Provision of such a working gas supply unit on a Diesel type pile hammer requires only few and low cost additional structural features.

The Scheid reference thus further teaches away from the use of a conventional drop hammer structure as recited in the Martin reference in place of the gas accumulator used by the Scheid device, which can be implemented with few and low cost structural features.

The Applicant thus respectfully submits that nothing in the Scheid or Martin references suggests that these devices be combined as suggested by the Examiner. To the contrary, the Scheid reference contains several teachings that would suggest to one of ordinary skill in the art that such a combination is impractical. The Applicant thus respectfully asserts that the combination of the Scheid and Martin references under 35 USC § 103(a) is improper and requests withdrawal of that rejection.

The Applicant further respectfully submits that, even if the combination of the Scheid and Martin references is proper, this combination would not yield the claimed device. The claims clearly recite a relationship among a housing member, a ram member, a helmet member, and a preload position defined by a vent port that is not disclosed by the cited combination.

In particular, the vent port is positioned to allow ambient air to flow into the housing chamber when the ram member is above the preload position and such that ambient air within the housing chamber is compressed when the ram member drops below the preload position. Neither the Scheid reference nor the Martin reference discloses a vent port that is connected to ambient air and which defines a preload position as recited in the claims.

The Applicant thus respectfully submits that the combination of the Scheid and Martin references fails to disclose, teach, or suggest the claimed invention and requests withdrawal of the rejection under 35 USC § 103(a) for this additional reason.

Given the foregoing, the Applicant respectfully submits that currently pending claims 1, 4-6, 8, 9, 12, 13, 15, 18, 19, and 21 are in condition for allowance, and such allowance is respectfully requested.

If there is any matter which could be expedited by consultation with the Applicant's attorney, such would be welcome. The Applicant's attorney can normally be reached at the telephone number below.

Signed at Bellingham, County of Whatcom, State of Washington this 12th day of January, 2007.

Respectfully submitted,

By Michael R. Schacht  
Michael R. Schacht, Reg. No. 33,550  
2801 Meridian Street, Suite 202  
Bellingham, WA 98225-2400  
phone: (360) 647-0400  
fax: (360) 647-0412  
Customer No. 30662

CERTIFICATE OF MAILING  
37 C.F.R. §1.8

I hereby certify that this paper (along with any paper referred to as being attached or enclosed) is being deposited with the United States Postal Service as first class mail in an envelope addressed to Mail Stop Non-Fee Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on the date shown below.

Signature: Michael R. Schacht

Print Name: Michael R. Schacht

Date: January 12, 2007